What is claimed is:

1. (Currently Amended) A production method of a mammalian artificial chromosome, comprising:

a first step of introducing a first vector being circular in form and comprising a mammalian centromere sequence, and introducing a second vector being circular in form and comprising an insertion sequence for specifically inserting a sequence of interest and an insulator sequence into a mammalian host cell, wherein the fist vector or the second vector comprises a selection marker gene and wherein the insulator sequence is selected from the group consisting of: human beta-globin HS1 to 5, chicken beta globin HS4, Drosophila gypsy retrotransposon, sea urchin 5' flanking region of arylsulfatase, blocking element α/δ ;of human T cell receptor α/δ , and repeat organizer of Xenopus 40S ribosomal RNA gene;

a second step of selecting transformed cells, wherein the selection of the transformed cells is carried out by using the selection marker gene; and

a third step of selecting a cell containing a mammalian artificial chromosome from the selected transformed cells, thereby producing a mammalian artificial chromosome.

2. (Canceled)

3. (Canceled)

4. (Previously Presented) The production method according to claim 1, wherein the mammalian centromere sequence comprises a region in which a plurality of the following sequences are arranged at regular intervals: 5'-NTTCGNNNNANNCGGGN-3': SEQ ID NO. 1, wherein N is selected from the group consisting of A, T, C and G.

5. (Currently Amended) The production method according to claim 1, wherein the mammalian centromere sequence comprises a sequence ~~derived~~ obtained from a human chromosome alpha satellite region.

6. (Currently Amended) The production method according to claim 5, wherein the mammalian centromere sequence comprises a 11mer repeat unit ~~derived~~ obtained from a human chromosome 21.

7. (Previously Presented) The production method according to claim 1, wherein the size of the mammalian centromere sequence is about 50 kb or less.

8. – 12. (Cancelled)

13. (Previously Presented) The production method according to claim 1, wherein the insertion sequence is a loxP site, a FRT site, or a sequence obtained by partial modification of a loxP site or a FRT site and has a function for inserting the sequence of interest.

14. (Previously Presented) The production method according to claim 1, wherein the quantity ratio of the first vector to the second vector, which are inserted in the first step, is in the range from about 10:1 molecular ratio to about 1:10 molecular ratio.

15. -56. (Canceled)